

REMARKS

Claims 1, 9, 12, 13, 16, 18, 20 and 23 have been amended. Claims 7, 8, and 19 have been canceled. Claims 1-6, 9-18 and 20-24 are currently pending in this application. Applicants reserve the right to pursue the original and other claims in this and other applications. Applicants respectfully request reconsideration in light of the above amendments and the following remarks.

Claims 1-4, 6-9, 12, 16-18, 22 and 23 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Reilly et al. (U.S. Patent No. 5,916,197) ("Reilly"). This rejection is respectfully traversed and reconsideration is respectfully requested.

Claim 1 has been amended to incorporate the limitations of previously presented claims 7 and 8. As such, claim 1 recites an appliance for water-jet surgery including a "plurality of supply cylinders, each supply cylinder including a piston, a working fluid enclosed therein, and an outlet, wherein the working fluid is enclosed within each supply cylinder in a leak proof manner until it is caused to be expelled, by means of the piston, through the outlet," a "pressure conduit in fluid communication with the outlet of each of the plurality of supply cylinders and into which the working fluid is expelled," "at least one actuation device to actuate the pistons" a "change-over device to shift the actuation from a first piston corresponding to a first of the plurality of supply cylinders to a next piston corresponding to a next of the plurality of supply cylinders such that the working fluid can be ejected into the pressure conduit from consecutively emptying supply cylinders" and a "change-over magazine that receives the plurality of supply cylinders, wherein the change-over magazine defines chambers, each of which receives and closely surrounds a respective one of the plurality supply cylinders."

The appliance for water-jet surgery according to the claimed invention includes several supply cylinders that are filled with a working fluid to be used for the operation. In use, the supply cylinders are consecutively emptied to provide the working fluid as needed for the operation. Further, the change-over magazine facilitates exchange of the supply cylinders by rotation of the magazine.

Reilly, on the other hand, relates to an injection system and pump system for use therein for pressurizing a liquid medium for injection into a patient. Reilly, Abstract. Through reciprocating linear motion of the Reilly pressurizing mechanism, the liquid medium is alternatively drawn into (e.g., from a container) and forced out of the chamber of the pressurizing unit, thereby obtaining the desired pressure. Id.

Applicants respectfully submit that Reilly does not disclose, or render obvious, the “change-over magazine that receives the plurality of supply cylinders, wherein the change-over magazine defines chambers, each of which receives and closely surrounds a respective one of the plurality supply cylinders,” as claimed. The Examiner relies on Reilly’s pressurizing unit chambers 20 as disclosing the claimed supply cylinders. Office Action, pg. 2. Applicants are unclear, however, as to which portion of the pump system 10 of Reilly the Examiner is relying in the rejection of previously presented claims 7 and 8, since the rejection merely cites the entire pump system 10. From the portions of the text that the Examiner cites, it appears as if the Examiner is relying on the pressurizing unit chambers 20 as disclosing the claimed change-over magazine. However, Applicants submit that the pressurizing unit chambers 20 cannot disclose both the claimed supply cylinders and the chambers of the claimed change-over magazine, since the pressurizing unit chambers 20 cannot “receive and closely surround a respective one of” themselves. Also, there is no other feature of the pump system of Reilly that “receive[s] and closely surround[s]” the pressuring unit chambers 20 of Reilly. Accordingly, Applicants submit that claim 1 is allowable over Reilly. Claims 2-4, 6, 9 and 12 depend from claim 1 and are allowable along with claim 1.

Claim 18 has been amended to incorporate the limitations of previously presented claim 19. As such, claim 18 recites, *inter alia*, “wherein each of said plurality of supply chambers comprises a locking mechanism that prevents a return movement of the piston once the piston has reached a position in which the supply chamber is substantially emptied of working fluid, thus preventing a return of working fluid into the supply chamber.” As admitted by the Examiner, Reilly does not disclose this feature. Office Action, pg. 5. Accordingly, Applicants submit that claim 18 is allowable over Reilly.

Claim 22 recites a “supply device for water-jet surgery” including a “device outlet,” a “plurality of receptacles, each of the receptacles configured and adapted to receive a supply cartridge that encloses a working fluid in a supply chamber defined by a piston, at least one chamber outlet and at least one supply chamber wall” and a “conduit that provides fluid communication between the device outlet and the at least one chamber outlet of each of the supply cartridges.”

Applicants respectfully submit that Reilly does not disclose, or render obvious, the claimed “plurality of receptacles, each ... being configured and adapted to receive a supply cartridge that encloses a working fluid.” The Examiner relies on the pressurizing unit chambers 20 as disclosing the claimed supply cartridge. Office Action, pg. 4. However, the rejection does not discuss the disclosure of the claimed “plurality of receptacles.” As discussed above, with respect to claim 1, Applicants respectfully submit that Reilly cannot be interpreted as disclosing a plurality of receptacles, each of which receives a supply cartridge, since it includes only the pressurizing unit chambers 20. Accordingly, Applicants submit that claim 22 is allowable over Reilly.

Claim 23 recites an “appliance for water-jet surgery” including an “opening configured and adapted to interchangeably receive a supply device having a plurality of supply chambers or a plurality of supply cartridges, each of the supply chambers / cartridges having a cylindrical side wall and a piston that closes one end of said cylindrical side wall” and a “plurality of actuation devices, each of the plurality of actuation devices actuating the piston of a respective one of the plurality of supply chambers / cartridges in a single direction.” Further, a “wall of said opening matingly opposes a portion of said cylindrical side wall of each of said supply chambers / cartridges.”

Applicants respectfully submit that Reilly does not disclose, or render obvious, that “each of the supply chambers / cartridges [has] a cylindrical side wall and a piston that closes one end of the cylindrical side wall” or that a “wall of the opening matingly opposes a portion of the cylindrical side wall each of the supply chambers/cartridges.” As described with respect to an example embodiment, this feature of the claim allows for the walls of the supply chambers /

cartridges to be manufactured of a thin material, which reduces the costs of manufacture and disposal. See, e.g., Substitute Specification, ¶[0015], Figs. 1-7.

Reilly, on the other hand, teaches that a supply device including the plurality of pressurizing unit chambers 20 is received by openings in a drive mechanism 100. See, Reilly, Fig. 7. The base plate of the supply device is received by a slit-like opening in the uppermost portion of the drive mechanism 100 and the respective piston extension members 76 of pistons 70 are received by slots 124 of the drive mechanism 100. However, the device of Reilly does not include an opening having a wall that “matingly opposes a portion of the cylindrical side wall” of pressurizing unit chambers 20 (upon which the Examiner relies as disclosing the claimed supply chamber). Accordingly, Applicants respectfully submit that claim 23 is allowable over Reilly.

Applicants respectfully request that the rejection of claims 1-4, 6, 9, 12, 16-18, 22 and 23 be withdrawn and the claims allowed.

Claims 5 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Reilly in view of Palmer (U.S. Patent No. 4,820,272) (“Palmer”). This rejection is respectfully traversed and reconsideration is respectfully requested.

Claim 5 depends from claim 1, which is allowable over Reilly for at least the reasons discussed above. Palmer is relied upon as disclosing a “back-flow barrier that prevents the piston from being pushed back into a previous position” (Office Action, pg. 5) and does not remedy the deficiencies of Reilly. Additionally, Applicants again submit that one skilled in the art would not be motivated to combine the sealing rings 25 of Palmer with the chambers 20 of Reilly to stop the pistons from moving backwards in the chamber because in Reilly the operation of the pressurizing device depends on the pistons operating in a reciprocating manner, moving into and out of the chamber in an alternating manner. See, Reilly, col. 5, lines 26-35. Applicants disagree with the Examiner’s assertion that it would have been obvious to provide the sealing rings of Palmer as a means to prevent the movement of the pistons in Reilly, for reasons discussed in more detail below

with respect to claim 18. Accordingly, Applicants submit that claim 5 is allowable over the cited combination.

Claim 18 has been amended to incorporate the limitations of previously presented claim 19. As such, claim 18 recites a “supply device for use in an appliance for water-jet surgery” including a “device outlet,” a “plurality of supply chambers enclosing a working fluid, each supply chamber defined by a piston, at least one chamber outlet and at least one supply chamber wall” and a “conduit that provides fluid communication between the device outlet and the at least one chamber outlet of each of the plurality of supply chambers.” Each of the “plurality of supply chambers comprises a seal that hermetically encloses the working fluid in the supply chamber until a high pressure is applied to the working fluid via the piston.” Further, “each of said plurality of supply chambers comprises a locking mechanism that prevents a return movement of the piston once the piston has reached a position in which the supply chamber is substantially emptied of working fluid, thus preventing a return of working fluid into the supply chamber.”

Applicants respectfully submit that Reilly and Palmer are not combinable in the manner asserted by the Examiner. As noted above, operation of the pressurizing device of Reilly relies on the pistons operating in a reciprocating manner. One skilled in the art would not be motivated to combine the sealing rings 25 of Palmer with the chambers 20 of Reilly to stop the pistons from moving backwards in the chamber. The Examiner has responded to this argument by arguing that “Reilly discloses that it may be desirable to include a mechanism for stopping flow of the injection medium” and that a person skilled in the art would thus be motivated to combine the teachings of Reilly and Palmer. Office Action, pgs. 9-10. Applicants respectfully disagree and submit that the Examiner is mischaracterizing Reilly in making this assertion. Reilly merely discloses that it may be “desirable to include a mechanism 760 for limiting or stopping flow of the injection medium if the developed pressure exceeds a certain threshold pressure.” Reilly, col. 8, lines 34-37. The examples given of this mechanism 760 are a “mechanism for sensing pressure in connection with the outlet of pump system 610” and a “mechanism for sensing motor current of the drive mechanism motor ... as an indirect measurement of pressure.” Reilly, col. 8, lines 39-43. This does not suggest that backwards movement of the piston should be blocked completely and permanently,

as disclosed in Palmer, but merely that there should be a means by which operation of the pump may be ceased upon exceeding a certain pressure threshold. In other words, even if it may be desirable for Reilly to include a mechanism to *selectively* stop motion of the pistons (based on a pressure threshold), the sealing rings 25 of Palmer would not provide this function, but instead would make it so that the pistons were *permanently* prevented from moving backwards in the chamber. As noted above, this would utterly disable the pump disclosed in Reilly and make it completely unusable. Thus, the references are not combinable as asserted by the Examiner.

Claim 18 also recites “thus preventing a return of working fluid into the supply chamber.” Reilly explicitly teaches avoidance of single use containers, and thus one skilled in the art would not arrive at the claimed invention (requiring prevention of return of working fluid into the chamber) based on the teachings of Reilly and Palmer, even if they were to be combined. Accordingly, Applicants respectfully submit that claim 18 is allowable over the cited combination.

Applicants respectfully request the rejection of claims 5 and 18 be withdrawn and the claims allowed.

Claims 10 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Reilly in view of McGregor (U.S. Patent No. 5,116,313) (“McGregor”). This rejection is respectfully traversed and reconsideration is respectfully requested.

Claims 10 and 11 depend from claim 1, which is allowable over Reilly for at least the reasons discussed above. McGregor is relied upon as disclosing that “ventilation devices [are] provided between the outlets of the supply cylinders and the conduit” (Office Action, pgs. 5-6) and does not remedy the deficiencies of Reilly. Accordingly, claims 10 and 11, along with claim 1, are allowable over the cited combination. Applicants respectfully request that the rejection of claims 10 and 11 be withdrawn and the claims allowed.

Claims 13-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Reilly in view of Schwartz et al. (U.S. Appl. Pub. 2003/0009132) (“Schwartz”). This rejection is respectfully traversed and reconsideration is respectfully requested.

Claims 13-15 depend from claim 1, which is allowable over Reilly for at least the reasons discussed above. Schwartz is relied upon as disclosing a “device capable of releasing liquid within tissue including a rotatable magazine having multiple cylinders each containing pistons, the magazine being moved by an indexing motor” (Office Action, pg. 6) and a “plurality of supply cylinders that are arranged parallel to the central axis of the change-over magazine” (Office Action, pg. 7). Applicants respectfully submit that Reilly and Schwartz are not combinable in the manner asserted by the Examiner. For the reasons discussed above, Reilly does not disclose a change-over magazine. Further, because of the reciprocal motion of the pump of Reilly (discussed above), the rotatable magazine of Schwartz would not function in the pump system of Reilly. Accordingly, claims 13-15, along with claim 1, are allowable over the cited combination. Applicants respectfully request that the rejection of claims 13-15 be withdrawn and the claims allowed.

Claim 20 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Reilly in view of Moutafis et al. (U.S. Patent No. 6,216,573) (“Moutafis”). This rejection is respectfully traversed and reconsideration is respectfully requested.

Claim 20 recites a “supply cartridge for use in a supply device for water-jet surgery” including a “sterile working fluid,” a “supply chamber for storing the working fluid, the supply chamber being defined by a movable piston, at least one chamber outlet and at least one supply chamber wall” and a “seal that hermetically encloses the sterile working fluid in the supply chamber, said seal being configured and adapted to irreversibly open upon application of a high pressure to the sterile working fluid via the movable piston.”

Applicants respectfully submit that the cited combination does not disclose, or render obvious, that the “seal [is] configured and adapted to irreversibly open upon application of a high pressure to the sterile working fluid via the movable piston,” as recited in claim 20. The Examiner relies on check valve 40 of Reilly as disclosing the claimed seal. However, the check valve 40 of Reilly cannot operate in the manner of the seal as claimed. The check valves 40 of Reilly serve to ensure unidirectional flow into or out of each chamber. Reilly, col. 5, lines 19-26. In this respect, the check valves may comprise flexible discs that act as valves. While the check valves 40 of Reilly

may open in response to a pressure applied to the working fluid enclosed in a chamber sealed by the check valve, the check valves of Reilly do not irreversibly open, as required by the claim. In fact, if the check valves of Reilly were to open irreversibly (i.e., permanently) this would undermine their intended function as a check valve for ensuring unidirectional flow. Thus, Reilly does not disclose the claimed seal. Moutafis is relied upon as disclosing a “device having [a] pumping system that supplies sterile saline to a conduit” (Office Action, pg. 7) and does not remedy the deficiencies of Reilly as to claim 20.

Accordingly, claim 20 is allowable over the cited combination. Applicants respectfully request that the rejection of claim 20 be withdrawn and the claim allowed.

Claim 21 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Reilly in view of Moutafis and further in view of Palmer. This rejection is respectfully traversed and reconsideration is respectfully requested.

Claim 21 depends from claim 20, which is allowable over the Reilly/Moutafis combination for at least the reasons discussed above. Palmer is relied upon as disclosing a “back-flow barrier that prevents the piston from being pushed back into a previous position” (Office Action, pg. 8) and does not remedy the deficiencies of Reilly/Moutafis. Also, for at least the reasons discussed above, Reilly and Palmer are not properly combinable. Accordingly, claim 21, along with claim 20, is allowable over the cited combination. Applicants respectfully request that the rejection of claim 21 be withdrawn and the claims allowed.

Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Reilly in view of Libermann (U.S. Appl. Pub. 2003/0176833) (“Libermann”). This rejection is respectfully traversed and reconsideration is respectfully requested.

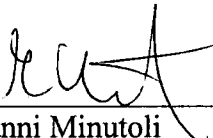
Claim 24 depends from claim 23, which is allowable over Reilly for at least the reasons discussed above. Libermann is relied upon as disclosing a “control device and a plurality of sensors associated with the plurality of actuation devices such that a signal is provided to the control device that indicates when the actuation device has reached a final position” (Office Action, pgs. 8-9) and

does not remedy the deficiencies of Reilly. Accordingly, claim 24, along with claim 23, is allowable over the cited combination. Applicants respectfully request that the rejection of claim 24 be withdrawn and the claims allowed.

In view of the above, Applicants believe the pending application is in condition for allowance.

Dated: January 22, 2010

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